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WILLIAM M HOBBY III  
HOBBY & BEUSSE  
157 EAST NEW ENGLAND AVENUE  
SUITE 375  
WINTER PARK FL 32789

EXAMINER

LEE, D

ART UNIT

PAPER NUMBER

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UNITED STATES DEPARTMENT OF COMMERCE  
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 11

Application Number: 08/993,516  
Filing Date: December 18, 1997  
Appellant(s): Dale E. Polk, Jr.

William M. Hobby, III  
For Appellant

**MAILED**  
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**GROUP 1100**

**EXAMINER'S ANSWER**

This is in response to appellant's brief on appeal filed October 22, 1999.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

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**(3) Status of Claims**

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal should include claims 6-7 as being rejected under 35 USC 103 in view of Okumura *et al* (USPN 5500170) in view of Knopf (USPN 4517145) and further in view of Murayama *et al* (USPN 4776782).

Claim 5 has been canceled.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Invention**

The summary of invention contained in the brief is correct except that the summary should refer to the specification by page and line number. See page 3, line 25 through page 5, line 17.

**(6) Issues**

The appellant's statement of the issues in the brief is correct.

**(7) Grouping of Claims**

Appellant's brief includes a statement that claims 1-4, 6, and 7 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

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**(8) Claims Appealed**

A substantially correct copy of appealed claims 1-4 and 6-7 appear on pages 1-2 of the Appendix to the appellant's brief. The minor errors are as follows: in claim 6, line 4 the word --each-- should be inserted after the word "allowing".

**(9) Prior Art of Record**

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

5,500,170	Okumura <i>et al</i>	3-1996
4,517,145	Knopf	5-1985
4,776,782	Murayama <i>et al</i>	10-1988

**(10) Grounds of Rejection**

*The following ground(s) of rejection are applicable to the appealed claims:*

Claims 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura *et al* (USPN 5500170) in view of Knopf (USPN 4517145). Okumura *et al* teach the basic claimed method of molding a thermoplastic, the steps of the method comprising:

- a. Selecting an extrusion die with adjustable die gate members (col 7, ln 35-48);
- b. Heating a thermoplastic material to a melted condition (fluid) (col 1, ln 10-14; col 3, ln 34);
- c. Adjusting the extrusion die for varying the thickness of the extruded material (col 3, ln 36-38);

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- d. Extruding a block (slab) of composite (thermoplastic) material through the die (col 3, ln 23-24);
- e. Cutting (trimming) the block to a desired width, length and thickness (predetermined size) (col 8, ln 18-25);
- f. Placing the block in a compression (thermoforming) mold (col 8, ln 36-41);
- g. Compression molding the block (col 3, ln 34-35).

Okumura *et al* teach the basic claimed method of molding a thermoplastic as discussed above but does not teach using a die with a plurality of gates. However, Knopf does teach a extrusion die head with a plurality of inner flow surfaces (die gates) which can be separately adjustable to thereby vary the thickness across the thermoplastic material being extruded (col 3, ln 14-18; col 5, ln 59-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Knopf with the thermoplastic molding process of Okumura *et al* in order to extrude a material with a varying thickness providing for a more detailed control and greater accuracy throughout the slab's width to thereby conform to the thermoforming mold.

Claims 2-4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okumura *et al* (USPN 5500170) in view of Knopf (USPN 4517145) and further in view of Murayama *et al* (USPN 4776782). The above discussions of Okumura *et al* and Knopf apply herein.

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Okumura *et al* teach the basic claimed method of molding a thermoplastic as discussed above but does not teach having a movable mold which can be rotated on a table. However, Murayama *et al* do teach moving the female compression mold (thermoforming mold) having a molded part therein while the mold is cooled (col 9, ln 39-46). Murayama *et al* also teach moving a second female mold in position for receiving the next trimmed extruded material (thermoplastic slab) (col 11, ln 45-62). Murayama also teach rotating the female molds on a table to be in a position to receive a trimmed extruded material (col 11, ln 45-62; abstract, ln 1-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the teachings of Murayama *et al* with the thermoplastic molding method of Okumura *et al* in order to increase the production of the thermoformed articles.

Okumura *et al* do teach using a drive motor to adjust the die gate, but does not teach the gate being moved with a electric stepper motor. Knopf does teach controlling a gap but also does not teach an electric stepper motor. However, a electric stepper motor is well known in the art and it would have been obvious to one of ordinary skill in the art to use the well known electric stepper motor with the extrusion die of Knopf in order to more precisely control the thickness of the extruded material.

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**(11) Response to Argument**

Appellant expresses on page 5, lines 6-8 and also on page 8, lines 5-15, of the Brief, that the cited reference of Okumura *et al* has a single adjustable device for adjusting plastic thickness and further that this design does not allow gates to be side-by-side to allow for thickness control. However, one of ordinary skill in the art would have known that in order to control the plurality of die gates as taught by Knopf, one would need multiple adjustable devices as taught by Knopf (col 3, ln 14-18). Therefore, in order to use a extrusion die head with multiple die gates, one of ordinary skill in the art would have found it obvious to adjust the process of Okumura *et al* to provide multiple adjustment devices for adjusting the plurality of die gates as taught by Knopf. One of ordinary skill in the art would be able to modify Okumura *et al* with the die head of Knopf since these extrusion die heads with variable thickness control have been vigorously tested and well established in the art. Therefore, one of ordinary skill in the art would be able to incorporate a variable thickness die head into their desired extrusion process without a need for a complete redesign of the machines.

The Appellant also argues on page 5, lines 8-9 that Okumura *et al* does not indicate how the plastic form gets to the mold. However, this argument is not persuasive since the Appellant does not claim a specific process of transferring the plastic form to the mold, but

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claims "placing said trimmed slab of heated thermoplastic material into a thermoforming mold". Furthermore, Okumura *et al* do teach placing the thermoplastic material into the thermoforming mold as claimed as mentioned in the previous rejection (col 7, ln 3-4).

The Appellant also argues on page 5, lines 12-24 and on page 6, lines 19-22 that the instant invention allows for a variable thickness slab trimmed to size to be laid into the mold as desired and that Okumura *et al* do not provide for or use a plurality of adjustable die gate plates placed adjacent to each other to adjust the thickness of the extruded slab. However, the rejection was not based on Okumura *et al* alone. The rejection was based on Okumura *et al* in view of Knopf and further in view of Murayama *et al*. Okumura *et al* do teach that the thickness of the extruded melt can be desirably changed to be suited to the desired shape and physical properties of the molded part (col 8, ln 33-38). Therefore, one of ordinary skill in the art would have found it obvious to use the die head of Knopf with the plurality of die gates to obtain a more detailed and sensitive control of the thickness of the extruded part to further comply to the desired shape and the physical properties of the desired molded part.

Appellant argues on page 6, lines 17-19 and on page 8, lines 20-23 that the art of record does not teach the use of a moveable carriage for loading the molds with the still heated thermoplastic. This argument is not persuasive since the Applicant does not claim a moveable carriage in which the speed and position is choreographed under the extrusion die.

Appellant also argues on page 5, line 23 through page 8, line 4 that Knopf does not use a plurality of die gates. However, the claimed feature of extrusion die having a plurality of

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adjustable die gates is readable on the prior art of Knopf. Knopf states that he uses "a plurality of inner flow surfaces in opposed relation to each other, thereby forming a die gap" (col 2, ln 64-65). There is also a plurality of means for adjustment of the relationship of the inner flow surface to each other. These adjustment means can individually and separately control the gap so that the opening may be expanded and contracted at each of the separate inner flow surfaces. Therefore, these adjustment means for the separate inner flow surfaces can be read upon as a plurality of adjustable die gates for the extrusion die head.

Appellant also expresses on page 8, lines 18-20 that the instant invention does not require an inert atmosphere as set forth in Okumura *et al*. However, we must not deviate from the instant claimed process. There is no mention for negating the use of an inert atmosphere in the instant invention and the argument that the Okumura *et al* use an inert atmosphere does not change the fact that Okumura *et al* teach the basic claimed process of the instant invention.

In response to the Appellant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the

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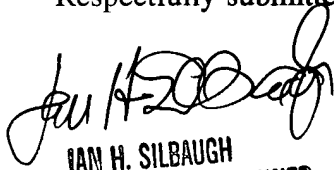
knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, one of ordinary skill in the art would find motivation to combine a variable thickness die head with a much more sophisticated thickness control to a extrusion process which uses a variable thickness die head with a less detailed control in order to control the thickness of the extruded material with much more precision and detail.

In response to the Appellant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

  
JAN H. SILBAUGH  
SUPERVISORY PATENT EXAMINER  
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11/22/99

DYL  
November 22, 1999

William M. Hobby  
157 E. New England Avenue  
Suite 375  
Winter Park, Florida 32789

  
Stanley S. Silverman  
Supervisory Patent Examiner  
Technology Center 1700

*Conferes*